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ABSTRACT

This study was conducted to examine reflective thinking in 12 preservice teachers as it relates to locus of control and creative thinking. Subjects completed the Torrance Tests of Creative Thinking (Verbal Form A) and The Locus of Control Scale for Teachers. Measures of the dependent variable, reflective thinking, were determined through analyses of weekly journals using the Pedagogical Language Acquisition and Conceptual Development Taxonomy of Teacher Reflective Thought. Results indicated that locus of control was a significant predictor of reflective thinking; however, none of the independent variables, either alone or in combination, were consistent predictors of reflective thinking. Comments from participants suggested a much stronger relationship between the variables of the study. For these preservice teachers, reflective thinking, creative thinking, and locus of control were definitely related and considered qualities of an effective teacher; and from their perspective, creative thinking and locus of control were both significant predictors of reflective thinking. Empirical and qualitative findings identified curriculum structures and personal characteristics that may maximize reflective thinking in preservice teachers. (Contains 25 references.) (LL)

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Creative Thinking and Locus of Control as Predictors of Reflective Thinking in Preservice Teachers

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Abstract

The purpose of this study was to examine reflective thinking in 12 preservice teachers as it related to locus of control and creative thinking. Empirical values of the independent variables were obtained through the Torrance Tests of Creative Thinking, Verbal Form A (Torrance, 1966) and The Locus of Control Scale for Teachers (Sadowski, Taylor, Woodward, Peacher, & Martin, 1982). Measures of the dependent variable, reflective thinking, were determined through analyses of weekly journals using the Pedagogical Language Acquisition & Conceptual Development Taxonomy of Teacher Reflective Thought (RPT Taxonomy) (Simmons, Sparks, Starko, Pasch, & Colton, 1989).

Limited previous research documented strong, positive correlations between the independent variables of creative thinking and locus of control and reflective thinking. Results from a series of regression models indicated locus of control was, during the fifth week of the semester, a significant predictor of reflective thinking. However, none of the independent variables, either alone or in combination, were consistent predictors of reflective thinking.

Comments from participant interviews suggested a much stronger relationship between the variables of the study. For these first year teachers, reflective thinking, creative thinking,

and locus of control were "definitely related" (Jessica, 1991)[1] and considered "qualities [of] an effective teacher" (Samuel, 1992). Furthermore, from their perspectives, creative thinking and locus of control were both significant predictors of reflective thinking.

Empirical and qualitative findings from this study identified curriculum structures and personal characteristics that may maximize reflective thinking in preservice teachers. Such information, hopefully, will assist teacher educators in implementing the principles of reflective practice.

Creative Thinking and Locus of Control as Predictors of Reflective Thinking in Preservice Teachers

During the past two decades demographic changes have altered the profiles of countless families, the educational needs of their children, and the school and community environments (Ogle, 1991). Equipped with repertoires of specific teaching skills, many teachers have been unprepared to adapt their instructional behaviors and materials to meet the challenges of today's diverse student populations. Low student achievement and pervasive teacher frustration are logical consequences of this incongruity between teacher and context.

Teacher education programs simply cannot address every student and every situation a prospective teacher will encounter. Rather, they must provide preservice teachers with a general knowledge base of pedagogical principles and practices and a strategy for adapting these principles and practices. For many teacher educators John Dewey's model of reflective practice is that strategy of adaptation (Hillkirk & Dupuis, 1989).

Reflective practice is a disciplined inquiry into the motives, methods, materials, and consequences of educational practice. It enables practitioners to thoughtfully examine conditions and attitudes which impede or enhance student achievement. Reflective teachers

(1) are responsive to the unique educational and emotional needs of individual students;

(2) question personal aims and actions; and

(3) constantly review instructional goals, methods, and materials (Pollard & Tann, 1987).

The paradigm of reflective practice is hardly a new one. In his seminal work, How We Think, published in 1909, John Dewey explained the concepts of reflective thinking and teaching. Reflective thinking, Dewey wrote, emphasizes the consequences of ideas and implies future physical action; it is not merely an exercise in theoretical manipulation or intellectual entertainment (Dewey, 1909/1933). Using methods of rational, systematic inquiry, the reflective person is able to confront and solve a variety of personal and professional obstacles; to be a proactive force in his/her environment.

In nurturing and sustaining habits of reflective thought, Dewey advocated the cultivation of three attitudes: openmindedness, whole-heartedness, and intellectual responsibility. "Openmindedness" (Dewey, 1909/1933, p. 30), the first of these desired attitudes, implies an intellectual receptiveness, a willingness to dispassionately consider multiple and novel ideas. Such openmindedness is accompanied by a sense of convergent attention or "whole-heartedness" (Dewey, 1909/1933, p.

31). All of the individual's mental, emotional, and physical resources are committed to the resolution of the problem. Ultimately, though, these admirable qualities of openmindedness and whole-heartedness are dangerous if not tempered by notions of "intellectual responsibility" (Dewey, 1909/1933, p. 32). Intellectual responsibility insists the reflective thinker consider the consequences of any proposed plan, the short-term and long-term effects of suggested behaviors.

Donald Schon, among others, has corroborated and expanded Dewey's observations on reflective thinking in his books, The Reflective Practitioner and Educating the Reflective Practitioner (Schon, 1983, 1987). The truly effective, reflective practitioner, Schon argues, must augment technical expertise with personal insights and artistry (Schon, 1983, 1987). Situations, despite seeming similarities, are unique problems which the practitioner must face. Solutions to these problems often lie outside the realm of existing professional knowledge; thus, the necessity for problem solving artistry or reflective practice.

The importance of this study lies in its attempt to promote reflective thinking and teaching strategies in programs of teacher education. Specifically, this study examined reflective thinking in preservice teachers as it related to creative thinking and locus of control. Empirical and qualitative data from this study

identified curriculum structures and personal characteristics that may maximize changes in reflective thinking in preservice teachers. Such information, hopefully, will assist teacher educators in implementing the principles of reflective practice.

This study, using dialogue journals to examine reflective thinking, differed from previous research on reflective thinking in several ways. First of all, participating preservice teachers were given preliminary instruction and explicit guidelines in writing reflective dialogue journals. Secondly, this study included weekly journals from the entire eight-week semester; not just selected entries from the beginning, middle, or end of the semester. Furthermore, previous research on reflective dialogue journals employed qualitative analysis techniques, techniques which allow recurring themes to emerge from the journals and provide the organizational framework for the data (Campbell, 1983; Martin & Wedman, 1988). This study approached the journal analyses with identifiable themes and an organizational framework; the RPT Taxonomy (Simmons, Sparks, Starko, Pasch, & Colton, 1989) guided journal analyses. Finally, few of the existing studies explored the relationship between reflective thinking and other variables such as creative thinking and locus of control.

Purpose

The purpose of this study was to examine reflective thinking in preservice teachers as it related to creative thinking and locus of control. Research questions were:

(1) Is there a relationship between the reflective thinking of preservice teachers and their creative thinking abilities?

(2) Is there a relationship between the reflective thinking of preservice teachers and their locus of control orientations?

(3) Given the independent variables of creative thinking and locus of control, what are the best predictors of reflective thinking in preservice teachers?

Limited previous research suggested strong, positive correlations between both independent variables of creative thinking and locus of control and reflective thinking. Specifically, Farra (1988) and others have explicitly linked reflective thinking and creative thinking in theoretical discussions, while Richards, Gipe, Levitov, & Speaker (1989) documented an empirical relationship between the two variables. Additionally, Richards et al. (1989) found an internal locus of control to be significantly associated with reflective thinking in their preservice population. However, previous research did not

suggest either independent variable to be a significant predictor of reflective thinking in preservice teachers or any other population. Therefore, investigations into this area were exploratory in nature.

Method

Research Design

In examining reflective thinking in preservice teachers and its possible relationships to creative thinking and locus of control, both quantitative and qualitative research techniques were employed. Academicians have traditionally considered these two paradigms philosophically incompatible. However, many investigators now view a combination of methodologies and data, or triangulation, as a logical method of conducting educational research (Anderson & Burns, 1990; Denzin, 1970). In this study triangulation was achieved through various quantitative and qualitative measures. They included

(1) numerical indices of creative thinking and locus of control;

(2) insights from content analyses of personal interviews; and

(3) limited quantification of interview and journal comments.

In addition to revealing different facets of the situation under study, triangulation also alleviates several traditional research concerns. The issues of validity, reliability, and generalizability have frequently plagued quantitative studies with small samples and qualitative studies in general. Triangulation, with its multiple perspectives and data sources, forms a network base of supporting, corroborative evidence. This network base enhances validity and reliability and allows generalizability of the research findings to other populations with increased confidence (Anderson & Burns, 1990; Donmoyer, 1990; Merriam; 1988).

Instrumentation

In this study three instruments were used to collect empirical data from participants. First of all, The Pedagogical Language Acquisition & Conceptual Development Taxonomy of Teacher Reflective Thought (RPT Taxonomy) (Simmons, Sparks, Starko, Pasch, & Colton, 1989) was used to assess the reflective thinking abilities of preservice teachers as evidenced in their weekly journals. The perspectives and writings of John Dewey, Donald Schon, and Max Van Manen provided the basic foundation of the RPT Taxonomy with their emphases on the

(1) attitudes of whole-heartedness, openmindedness, and intellectual responsibility;

(2) active concern for consequences of actions;

(3) willingness to monitor, evaluate, and modify practice as necessary; and

(4) use of inquiry to critically examine pertinent classroom and social factors inherent in the learning situation (Dewey, 1909/1933; Schon, 1983, 1987; Van Manen, 1977).

Secondly, empirical measures of participants' creative thinking abilities were obtained with the Torrance Tests of Creative Thinking, Verbal Form A. Used with kindergarten through adult populations, this battery of tests yields several indices of creative thinking abilities including verbal fluency, originality, and flexibility (Torrance, 1966). Finally, The Locus of Control Scale for Teachers, a 20-item, Likert scale questionnaire, was administered to determine participants' locus of control orientations. Based on Rotter's theoretical foundations on locus of control, this instrument enlarges Rotter's general construct to identify locus of control in teachers (Sadowski, Taylor, Woodward, Peacher, & Martin, 1982).

Subjects

The sample used in this study was composed of 12 preservice teachers (11 females, 1 male) from a private, selective university in the southeast. Seven of the participants were early childhood

education majors, while the remaining five were seeking secondary certification. Of these five, two were concentrating in English, and three were focusing in social studies. At the initial time of data collection, subjects were participating in their first semester of extended clinical field experience. During this eight-week semester each preservice teacher spent 20 hours a week in a supervised teaching practicum in various elementary and secondary schools; completed remaining coursework required for degree and/or certification completion; and attended a weekly, university-based teaching seminar with their peers.

Procedures

An important, on-going assignment in this university-based teaching seminar was reflective dialogue journal writing. Participants were introduced to reflective thinking and dialogue journal writing in the first seminar as they learned of the philosophies of John Dewey and Donald Schon and engaged in various exercises to stimulate self-awareness and reflective thinking. Using specific guidelines and topics which corresponded to the seminar lectures, the preservice teachers submitted weekly journals to their individual field supervisor. During the following week, field supervisors critiqued each journal entry, offering probing comments and questions and clarification when

necessary. Journals were then returned to the students at the beginning of the next class session.

In the course of the semester each student teacher wrote nine journal entries, eight of which were analyzed in this study (N = 96). Guided by the RPT Taxonomy, two researchers coded the journals and assigned each entry a single score. This score represented the highest level of reflective thought evidenced in that particular journal. The inter-rater reliability for these researchers was .71, a coefficient determined by an adaptation of the Spearman-Brown prophecy formula (Mehrens & Lehmann, 1973). Even though the obtained reliability coefficient revealed a lack of 100% initial agreement between the two coders, a consensus was always reached through extensive discussion. Therefore, the final rating of reflective thinking for each journal represented a unanimous decision.

Measures of creative thinking and locus of control were obtained through the Torrance Tests of Creative Thinking, Verbal Form A, and The Locus of Control Scale for Teachers, respectively. Pearson product-moment correlations were calculated to assess the strength and direction of any associations between variables, while a series of regression models were estimated to determine the individual and combined predictive effects of the independent variables on reflective thinking.

Finally, a qualitative component was included in this study to enhance, support, and illuminate statistical findings. Interviews with these former preservice teachers were conducted and highlighted issues of reflective thinking, creative thinking, and locus of control. At the time of the interviews, participants had completed an entire year of clinical field experiences at the university, and seven were ending their first year of full-time classroom teaching in various public school systems. Responses from these sessions offered a richness of description to the study and a enlightening breadth and depth to the empirical results.

Results

Quantitative Findings

Generally, statistical analyses failed to corroborate strong, positive correlations between reflective thinking and the independent variables of creative thinking, $r(11) = -0.149$, $p > .05$, and locus of control, $r(11) = 0.096$, $p > .05$. Additionally, results from a series of regression models indicated locus of control was, during the fifth week of the semester, a significant predictor of reflective thinking, $F(1, 10) = 7.772$, $p < .05$. However, none of the independent variables, either alone or in combination, were consistent predictors of reflective thinking.

Qualitative Findings

Analyses of quantitative data revealed limited relationships between reflective thinking and the independent variables. Comments from participant interviews, though, suggested another reality; a reality in which reflective thinking, locus of control, and creative thinking, "all fit together" (Samuel, 1992).[1] In describing the ideal effective teacher, all of the participants agreed it was very important for a teacher to be a reflective thinker. A reflective teacher "sees beyond the immediate" (Laura, 1992) and helps [her] students see beyond the classroom.

> Times change, people change, everything changes. . . and if you're not a reflective teacher, you don't change with them. And, you're not going to be effective if you don't change. You have to be ready and willing to adapt to these changes (Harriett, 1992).

Participants also offered insightful observations on reflective thinking and its importance to effective classroom teaching. For them, an effective teacher closely resembled the reflective teacher described by Pollard & Tann (1987). For example, a reflective teacher is responsive to the unique educational and emotional needs of the individual students (Pollard & Tann, 1987).

> A reflective teacher is one, who, all during the day, is checking back and saying, "Did that work? What could I do to help that child?" It's [reflective thinking] an on-going process that you do before you arrive at school, during the school day, and in the evening at home. It's an on-going check of each child's progress. You don't get to the end of the year and find out one of your students can't read (Trish, 1992).

Secondly, a reflective teacher questions personal aims and actions (Pollard & Tann, 1987).

> A reflective teacher is one, who, at any point, can stop and look back upon either what they've done or what they've said and be real honest about the experience. I look back so my next step forward is a better one. A reflective teacher is focused, stays clear on their purpose, and is honest with themselves about the quality of the education they are providing (Pat, 1992).

Finally, the reflective practitioner constantly reviews instructional goals, methods, and materials (Pollard & Tann, 1987).

> [She] is continually trying to evaluate the situation and improve, to see what needs to be changed and what can be changed. Other teachers may be grounded in tradition or routine and respond to many different situations with, "I've always done it that way." But, a reflective teacher is always assessing the situation and making amendments when needed (Wanda, 1992).

For these former preservice teachers, an effective, reflective teacher is also a creative one. <u>All</u> of the participants thought creative thinking and reflective thinking were "definitely related" (Sarah. 1992).

> When you reflect and think back on a lesson, you may have planned an activity that a child wasn't interested in. Then you have to think of another learning activity that does interest him or her. That's where the creativity comes in (Sarah, 1992).

A creative teacher is a problem-solver and adapter, adapting materials and ideas to meet his/her classroom needs.

> A creative teacher can take whatever's available and make something out of it. You know, if she has bottle caps at home, she can bring those in and use them as counting tools in math (Sarah, 1992).

> A creative teacher finds ways and uses for objects or comments or activities that aren't readily noticeable. Somebody's smart remark in the back of the room isn't just a smart remark; maybe it opens up a new avenue in the discussion. The school can't budget in all you need, so you just have to find a use for everything. You just use what you have to the ultimate. . . creative thinking is finding multiple ways to use everything (Pat, 1992).

A creative teacher also provides an interesting, exciting, stimulating classroom environment.

> [She] is always looking for new, different, and interesting ways to teach the material. A creative teacher tries to incorporate a variety of teaching methods and materials in her lesson plans (Allison, 1992).

> [She] tries to make the hum-drum fun (Jessica, 1992).

All of the participants said it was important for a teacher to be creative. By modeling creative thinking, teachers encourage their students to be creative, and, by coordinating creative learning activities, teachers foster a love of learning in their pupils.

> Some schools provide all these commercial resources, and that's fine. But, then the child might go home to a family that can't afford all this Fisher-Price stuff. If the child has seen the teacher use ordinary things in the classroom, he or she will say, "Well, I can pick pennies out of my penny jar and use them in my math homework." Modeling creative thinking lets the child see that he or she can be creative, too (Sarah, 1992).

> A creative teacher keeps things changing all the time. If you keep things creative and changing all the time, they [students] are never going to know what to expect. . . which means they're, generally, always listening and interested. "What is she going to do next?" If things are old and boring, and the students know what to expect, they're going to tune you out. Especially with younger children, it's important to keep a lot of variety in their day, because we want them to learn to like school and learning. It breaks my heart to hear a third grader say, "I hate school." Somebody hasn't taken the time to show him how learning can be fun (Harriett, 1992).

A strong internal locus of control was also considered by many participants to be an important characteristic of an effective teacher.

> Reflective thinking and locus of control are intertwined, because they depend on the individual. . . how he or she looks at things. If you think about things and what you (or others) can do to help, you're reflecting. But, at the same time, you're showing an internal locus of control, because you're saying, "This is what I need to do to change things" (Trish, 1992).

> With an external locus of control you think things happen because they just happen. You're going to think, "Well, Johnny made an F because Johnny made an F. I had no control over it; it was just Fate!" Whereas, if you have a strong internal locus of control, you're going to look for reasons. "Well, maybe Johnny made an F because I didn't explain it

> thoroughly." It's especially necessary for someone who's going to work with a lot of different kids from different backgrounds and experiences and whatever to have an internal locus of control (Sarah, 1992).

In summary, for these first year teachers, reflective thinking, locus of control, and creative thinking were "definitely related" (Jessica, 1991) and considered "qualities [of] an effective teacher" (Samuel, 1992). Furthermore, from their perspectives, creative thinking and locus of control were both essential components of reflective practice and, thus, significant predictors of reflective thinking. As Pat (1992) concluded,

> Because I have an internal locus of control, I am inclined to reflect on my actions. So there's a direct relationship as far as I'm concerned there. If I'm constantly blaming other people or having other people or other things be responsible for my actions, why in the world would I ever consider reflecting? I'd be sunbathing and reading books!
>
> Also, reflective thinking, I think, enhances creativity. If I'm reflecting, and I think back to something, and I go, "Wow, that didn't work," or "That didn't work as well as I'd hoped," that automatically shuts off certain possibilities, and I've got to open up new ones. It's like erasing a blackboard. It's scary to think about, but from nothing, everything's possible. If I have my blackboard cluttered with ideas that <u>don't</u> work, <u>didn't</u> work, and <u>never will</u> work, then there's not as much room for new possibilities. So, I would say that by being reflective I can go ahead and clean my blackboard a little more often and open up all new areas to be creative. I have more room for ideas, which is the fluency part. . . more room for originality, flexibility. It's probably like a chain reaction between the three.

> Really, I can't imagine a person with an external locus of control taking time to reflect. Also, if you don't reflect, how can you be creative? You haven't thought about other ideas you've seen in the past, things you've read about, and ways to make experiences better.

Discussion

The purpose of this study was to examine reflective thinking in preservice teachers as it related to creative thinking and locus of control. Findings from the study must be interpreted with several limitations in mind. First of all, theoretical considerations and the use of dialogue journals were discussed as they related to the initial, part-time field experience semester of teacher preparation programs and not the curricula _in toto_. Additionally, the avenue of assessment of reflective thinking, (i. e., through dialogue journals), may be a truer indicator of the preservice teachers' _writing_ abilities rather than their _reflective_ abilities. Finally, the small sample, composed of mostly white, middle-to-upper class females from a private university, hardly typified the national preservice teacher population. Generalization of these findings to the entire teacher education program or other preservice populations must be tentative.

The results of this study indicated a low, negative correlation between reflective thinking and creative thinking. Additionally, creative thinking was not a significant predictor of

reflective thinking at any point during the semester. Admittedly, these findings were puzzling. Previous empirical research and all of the participants in this study suggested a strong, positive relationship between these two variables (Farra, 1988; Richards, Gipe, Levitov, & Speaker, 1989).

Similarly, analyses indicated a negligible, positive correlation between locus of control and reflective thinking. However, locus of control, alone, was a significant predictor of reflective thinking during the fifth week of the semester. As with creative thinking, previous empirical research and all of the study's participants suggested a strong, positive correlation between the two variables. Locus of control and reflective thinking were "definitely tied together" (Sarah, 1992). Moreover, locus of control was viewed as a major predictor of reflective thinking.

> Reflective thinking is really thinking about what you do. But, first, you have to have an internal locus of control to think you can change something. So, those two are related for sure (Harriett, 1992).

Perhaps the findings of this portion of the study do accurately portray the relationship between the independent variables of creative thinking and locus of control and reflective thinking in these preservice teachers. Or, perhaps the results mirror one of the limitations of the study mentioned earlier. It

was noted the avenue of assessment of reflective thinking (i. e., thorough analyses of weekly journals) may have actually measured subjects' writing abilities rather than their reflective abilities. Could participants' writing abilities, as well as aspects of the writing task, have influenced the reflective thinking evidenced in the weekly journals?

A closer look at the study's sample reveals the possibility of this assessment of writing, rather than reflective, abilities. Of the five preservice teachers seeking secondary certification, two were concentrating in English, and three were focusing on social studies. English and social studies, unlike other secondary fields of mathematics or science, for examples, typically emphasize the development of expert compositional skills. Quite possible, the preservice teachers in this study were merely more adept at writing than reflecting.

Additionally, research on writing indicates many factors may affect a writer's strategies and the quality of the final manuscript. For example, studies of college students indicate high student involvement and superior writing are evident when writing assignments

(1) are more abstract in nature (Matsuhasi; cited in Dyson & Freedman, 1991, p. 761);

(2) require analysis, synthesis, and evaluation of

knowledge, rather than "rote reproduction of other authors' ideas" (Nelson & Hayes, 1988, p. 1);

(3) include periodic, formative feedback from the instructor (Nelson & Hayes, 1988); and

(4) are designed for oral presentation as well as private assessment by the instructor (Nelson & Hayes, 1988).

Similarly, in a statewide assessment of eighth-grade students' writing abilities, Engelhard and others (1991) found

(1) mode of discourse (narrative, descriptive, and expository) and
(2) experiential demand (direct experience, imagined experience, and outside knowledge) (p. 7)

to be significant predictors of the "quality of student writing' (Engelhard, 1991, p. 20). Narrative writing and writing that required personal experience (either direct or imagined) received the highest ratings in this two-year evaluation.

In summary, none of the independent variables were consistent significant predictors of reflective thinking in preservice teachers. Even though a cause and effect relationship for these results is impossible to determine with certainty, research suggests student writing abilities and task structure impact the quality of the final written composition. From this perspective, participants' weekly journals may have been more indicative of their writing abilities than their reflective abilities, thus resulting in lower reflective thinking scores for

some students. Until further research is done in this area of writing abilities and reflective thinking, generalizations of these results to other preservice populations should be made with caution.

Implications for Teacher Education

The model of reflective practice is still an evolving and largely philosophical concept. This study examined reflective thinking in preservice teachers as it related to creative thinking and locus of control. It identified several instructional methods and/or organizational patterns which, hopefully, will assist teacher educators in implementing the principles of reflective practice.

First of all, results from a previous study involving this same preservice population confirmed a positive correlation between length of time in the teacher education program and changes in reflective thinking (Norton, in press). The sample, as a whole, became more adept at higher levels of reflective inquiry. All of the participants agreed the university was strongly committed to developing reflective practitioners, and a number of components in the teacher education program may have contributed to this increase in reflective thinking.

During individual interviews many preservice teachers mentioned the weekly dialogue journals as major catalysts in

promoting and refining strategies of reflective thought. Explicit guidelines for writing reflective journals, journal topics complementing seminar discussions, and extensive and probing feedback from field supervisors were frequently cited as instrumental in developing reflective thinking. It is recommended the participating university's teacher education program retain these aspects of writing dialogue journals.

Many preservice teachers also noted the importance of small group instruction in stimulating reflective thinking. These small group discussions were, for many preservice teachers, highlights of the student teaching seminar. The groups were distinguished by teacher certification type, focused on issues and methodologies typical of their student populations, and appeared to promote a more intimate, subject-specific professional rapport. It is recommended the university retain its present weekly seminar format, a format which combines elementary, middle, and secondary preservice teachers into a single class. Additionally, based on the interview comments from this study, it is recommended more opportunities for small group interaction be integrated into the seminar structure.

Finally, preservice teachers were asked to identify specific foundation, research, or methods courses that particularly promoted reflective thinking. Most of the participants

unhesitatingly praised Dr. Robert Jackson and his course on instructional methods and materials for teaching mathematics in the elementary and middle school. According to the respondents, Dr. Jackson presented creative, provocative activities, activities which helped children understand both the 'how to' and the 'why' of mathematics. For these growing preservice teachers, theory and practice did not merely co-exist in this class. Theory and practice meshed to develop a sound theoretical foundation; a repertoire of practical, usable teaching techniques; and skills of reflective inquiry to evaluate future experiences. It is recommended the Division invite Dr. Jackson to conduct a faculty professional development seminar and share philosophies and activities from this exciting course.

In summary, the university's teacher education program, and particularly the clinical field experience, attempts to coordinate and integrate several reflective components into a complementary, cohesive whole. Each activity supports and extends the others; each activity forges theoretical principles and experiential knowledge; and each activity stimulates and refines skills of reflective thought and practice. These recommendations concerning the dialogue journals, weekly university seminar, and faculty professional development seminar may be useful to teacher educators in redesigning their program of study to meet constantly

evolving educational needs.

Directions for Future Research

Even though the paradigm of reflective practice answers many professional needs and questions, it simultaneously raises concerns and issues for further consideration and research. This study alone identified several research questions, questions which must be answered if Schon's reflective practitioner is to become the norm rather than the exception in educational communities.

First of all, does increased reflection actually enhance classroom performance? Are reflective, thoughtful, analytical teachers more effective in promoting a student's emotional, physical, moral, and cognitive growth than their unreflective, complacent, routine-bound colleagues? A preliminary study suggests reflective thinking and teacher effectiveness are <u>not</u> significantly related. Kirby (1987) found reflective thinking, as measured by a 26 item written instrument, was not a significant predictor of teacher effectiveness. Of course, this study was "an initial attempt to operationalize the concept of reflective practice in teaching" (Kirby, 1987, p. 1771) and should be viewed from that perspective.

Secondly, how is reflective practice identified in the classroom? Structured interviews, dialogue journal entries, and written philosophies of education are frequently used to measure

reflective thinking (Hillkirk, 1987). However, these avenues ultimately fail to target actual behaviors in the classroom that connote a reflective orientation. An observation tool, to be used by the evaluator or researcher during an actual classroom visit, would provide a more direct means of determining reflective practice. Several such instruments have been developed and pilot-tested, but more research is needed before these reflective teaching observation instruments gain widespread acceptance (Jadallah, 1984; Lambert, 1976).

Additionally, once the efficacy of reflective practice has been established and classroom examples of the paradigm isolated, means of predicting reflective thought may then be explored. Are there certain program, personality, and/or cognitive variables that can predict the presence or absence of attitudes of reflective practice? Can a preservice teacher with an inclination towards reflective inquiry be identified by a particular personal and/or intellectual characteristic? Or, does the habit of reflective thinking emerge only with age and experience? Ideally, if initial predispositions towards reflective thinking in preservice teachers could be identified, then teacher educators could structure appropriate reflective activities for each group.

Finally, unanticipated findings from this study merit further investigation. Specifically,

(1) Is there a relationship between the reflective thinking of preservice teachers and their writing abilities?

(2) Is there a relationship between the reflective thinking of preservice teachers and the selection and order of journal topics?

(3) Is there a relationship between the reflective thinking of preservice teachers and previous teaching experiences?

(4) Is there a relationship between the reflective thinking of preservice teachers and aspects of the school setting?

(5) Is there a relationship between the reflective thinking of a preservice teacher and his/her cooperating teacher's years of experience?

(6) Is there a relationship between the reflective thinking of a preservice teacher and his/her cooperating teacher's academic preparation?

(7) Is there a relationship between the reflective thinking of a preservice teacher and his/her cooperating teacher's age?

(8) Why did these results fail to corroborate a strong empirical relationship between the reflective thinking of preservice teachers and their locus of control orientations?

(9) Why did these results fail to corroborate a strong empirical relationship between the reflective thinking of preservice teachers and their creative thinking abilities?

These major research questions, though vital to a clear and complete understanding of reflective practice, are, ultimately, catalysts for future study. Questions beget research; research begets more questions; and more questions beget more research. The cycle of reflective inquiry never ends.

References

Anderson, L. W., & Burns, R. B. (1990). Research in classrooms: The study of teachers, teaching and instruction. New York: Pergamon Press.

Denzin, N. K. (1970). Triangulation: A case for methodological and combination evaluation: An introduction. In N. K. Denzin (Ed.), Sociological methods: A sourcebook (pp. 471-475). Chicago: Aldine.

Dewey, J. (1933). How we think: A restatement of the relation of reflective thinking to the educative process. Boston: D. C. Heath. (Original work published 1909)

Donmoyer, R. Generalizability and the single-case study. In E. W. Eisner & A. Peshkin (Eds.), Qualitative inquiry in education: The continuing debate (pp. 175-200). New York: Teachers College, Columbia University.

Dyson, A. H., & Freedman, S. W. (1991). Writing. In J. Flood, J. M. Jensen, D. Lapp, & J. R. Squire (Eds.), Handbook of research on teaching in the English language arts (pp. 754-775). New York: Macmillan.

Engelhard, G. and others. (1991, April). Writing tasks and the quality of student writing: Evidence from a statewide assessment of writing. Paper presented at the Annual Meeting of the American Educational Research Association,

Chicago, IL.

Farra, H. (1988). The reflective thought process: John Dewey re-visited. The Journal of Creative Behavior, 22(1), 1-8.

Hillkirk, R. K. (1987). Preservice secondary teacher reflective and inquiry skills and ability to articulate a written philosophy of education. (Doctoral dissertation, Pennsylvania State University, 1987). (From Dissertation Abstracts International, 1988, 48, 2604A, Abstract No. DA8728016)

Hillkirk, R. K., & Dupuis, V. L. (1989). Outcomes of a teacher education curriculum module that emphasizes inquiry and reflection. The Teacher Educator, 24(3), 20-27.

Jadallah, E. (1984). The development of a reflective teaching observation instrument. (Doctoral dissertation, Ohio State University, 1984). (From Dissertation Abstracts International, 1985, 46, 127A, Abstract No. DA8504033)

Kirby, P. C. (1987). Reflective practice as a predictor of teacher effectiveness. (Doctoral dissertation, University of New Orleans, 1987). (From Dissertation Abstracts International, 1987, 49, 1771A, Abstract No. AAC8810301)

Lambert, G. E. (1976). The development of an observation instrument for detecting the presence of reflective teaching in classrooms. (Doctoral dissertation, Ohio State

University, 1976). (From Dissertation Abstracts International, 1977, 37, 5053A-5054A, Abstract No. 77-2441)

Mehrens, W. A., & Lehmann, I. J. (1973). Measurement and evaluation in education and psychology. New York: Holt, Rinehart and Winston.

Merriam, S. B. (1988). Case study research in education: A qualitative approach. San Francisco: Jossey-Bass.

Nelson, J., & Hayes, J. R. (1988). How the writing context shapes college students' strategies for writing from sources. (Tech. Rep. No. 16). Berkeley, CA: Center for the Study of Writing.

Norton, J. L. (in press). Reflective thinking in preservice teachers: Patterns of change and differences. College Student Journal.

Ogle, L. T. (1991). The condition of education 1991: Elementary and secondary education (Vol. 1). Washington, DC: National Center for Education Statistics.

Pollard, A., & Tann, S. (1987). Reflective teaching in the primary school: A handbook for the classroom. London: Cassell Educational Limited.

Richards, J. C., Gipe, J. P., Levitov, J., & Speaker, R. (1989, March). Psychological and personal dimensions of prospective teachers' reflective abilities. Paper presented

at the Annual Meeting of the American Educational Research Association, San Francisco, CA.

Sadowski, C. J., Taylor, R. C., Woodward, H. R., Peacher, R. K., & Martin, B. J. (1982). The reliability and validity of a Likert-type Locus of Control Scale for Teachers. JSAS: Catalog of Selected Documents in Psychology, 12, 3. (Ms. No. 2475)

Schon, D. A. (1983). The reflective practitioner: How professionals think in action. New York: Basic Books.

Schon, D. A. (1987). Educating the reflective practitioner: Toward a new design for teaching and learning in the professions. San Francisco: Jossey-Bass.

Simmons, J. M., Sparks, G. M., Starko, A., Pasch, M., & Colton, A. (1989). Pedagogical language acquisition & conceptual development taxonomy of teacher reflective thought: Interview and question format. Ypsilanti, MI: Collaboration for the Improvement for Teacher Education, Eastern Michigan University.

Torrance, E. P. (1966). Torrance tests of creative thinking, verbal form A. Bensenville, IL: Scholastic Testing Service.

Van Manen, M. (1977). Linking ways of knowing with ways of being practical. Curriculum Inquiry, 6(3), 205-228.

Footnotes

[1]All participant and place names were changed to assure the anonymity of each person and the confidentiality of the study.